

Additional Classified on Page 15

SELL: MODEL 26 with table, \$49. Model 14 TD \$29. . . Want: Manual for model 19A/ model 15U. Also need certain RTTY Journals to buy or borrow for Xerox. WIEGT, Steve Mann, 18 Chipmunk Lane, Darien, Conn. 06820

FRXD Manual wanted, sections covering parts and adjustments, and especially a full schematic. Chet, KØRC, 9344 Riggs Street, Overland Park, Kansas 66212.

WANTED - Code bars for 14 typing reperforator, also 14 keyboard. SELL - TM 11-352. Complete manual on Model 15 printer, \$4.50 pp. Navships 93241, complete manual on Model 28 KSR printer, \$7.50 pp. W.H. Bauer, 119 North Birchwood Ave., Louisville, Ky. 40206.

SWAP: Motoral handy-talkies, partially transistorized, for #28, #35, or #37 RTTY gear. I also have RTTY, FAX, Demods and other gear. List sendfree. G.E. White, 5716 N. King's Highway, Alexandria, Virginia, 22303. 703-765-5478 after 9 pm.

WANT: RTTY demodulator, CV-60 by RCA, for use with AN/SRR-13 receiver. Interested in purchasing all units of this system. N. Thompson WIDXR 5 Palmer Gorham, N.H.

WANTED: 455KC input unit for CV-57. Elmer Shafer, W8MSG, 3479 Kersdale Rd., Cleveland, Ohio, 44124.

Wanted: 1/2 in. paper tape used in a Beehne CW Keyer. Send your price and amount available For Sale to, Robert R. Smith WB6DR 13209 Idyl Dr., Lakeside, California 92040.

RTTY JOURNAL
P O Box 837
Royal Oak, Mich. 48068

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RTTY JOURNAL

FEBRUARY 1969

EXCLUSIVELY AMATEUR RADIOTELETYPE

Volume 17 No. 2

30 Cents

CARTG 'Trophy Week End' Results --

PAGE 2

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Congratulations to Charlie, W5QCH for the fine score in the CARTG Contest. He was the North American winner and had over a half million points. Charlie is a

commercial pilot in working life and hopes to get to some of the Caribbean Islands for a DXpedition. In the mean time he is active on the bands anytime he is home.

W5QCH

CARTG 'RTTY TROPHY WEEK END'

Results - Comments

Last year we used all the superlatives we knew in describing the CARTG Sweepstakes of 1967. Without repeating all the words we can simply say that the 'RTTY Trophy Week End' was much bigger and even better.

CARTG, the sponsors of the contest are to be commended, but their president, Sid Burnett, VE3GK, deserves a special vote of thanks from every contestant for the tremendous work he personally supplied. SID prepared and furnished advance publicity to every radio magazine in plenty of time for publication as well as writing several overseas stations personally. He raised money and purchased the trophies, had pictures taken of them. Came up with a number of divisions in the contest to attract new stations, that might not be equipped for DX work, to increase work on little used bands, to promote narrow shift and even a division for the listener unable to transmit. Some of the divisions were not as active as hoped for but it was a start on something besides a pure DX contest and only by trying and experience do ideas expand and grow. All these contests within a contest made for a tremendous amount of work in checking logs but thirty days after the deadline, with a record number of logs Sid had the complete results ready.

The "Trophy Week End" was a huge, noisy success. All trophies have been engraved and should be mailed by the time you read this but if any Super Trophy is awarded it should go to Sid and his XYL Gwen for a tremendous job, a hell of a lot more than expected from any one person.

Some of Sid's and other comments follow, along with the results. If anyone has comments or suggestions they are still welcome. Only by your suggestions can future events be planned to satisfy as many as possible.

CONTEST SUMMARY OBSERVATIONS

Conditions during the Contest were good, and some tremendous scores were made. As usual a number of new stations showed up -- New Caledonia, Antarctica, two contacts on 20 meters with JA1MP - Japan, and one contact was made by DJ6ZBA with EP2HL - Iran. 15 and 20 meters operation was excellent, and with

the sustained activity on the part of the European hams, the results were continuous pile-ups on both of these bands, both Saturday and Sunday.

Many more 10 meter contacts could have been made, and many points were lost by the U.S.A. stations who refused to check the 28.5 meg. section. VE3RTT Log shows only two American stations worked, though many were called and logged, however, but with no results, KA9AK was missed by his absence.

140 Logs were received from all parts of the world, plus 3 Logs from SWL (printer) stations -- total 143 Logs. On carefully cross-checking each Log, the U.S.A. was represented by approximately 265 station calls that showed they had participated in the Contest. Approximately 450 - 500 stations world-wide participated, and eight stations worked WAC. Of all the Logs received, 38% showed NFSK operation. 40% showed 10 meter activity, and only one station was cited for it's poor contest manners.

W8CQ should be honorably mentioned for the tenacity and drive shown in working the most U.S.A. States and Canadian Provinces. High score made by this station is 42 worked. However, this station disqualified himself, the award being a "RTTY JOURNAL" Trophy. The winner was then W9HHX with W8FWG and K7MNZ tied in the next spot.

Rules and rest periods seemed to be favorably received by the many comments, and this contest was acclaimed one of the best ever, and appreciation was shown for the effort put into it. In reference most stations operated with a single operator, but many show as high as 8 operators. with all calls affixed to their Logs.

"CARTG" has some constructive criticism. All Logs and Score Sheets should be of an Official Print, and supplied to all contestants. (No other form of Log should be accepted). This would allow the final tabulation of Logs to be programmed and fed into a computer, which would reduce the amount of work and time now put into checking and compiling. It would also encourage a more uniform score, and more neatly written up. This Programming and Computer Service has been offered to

"CARTG" by one of our leading Toronto schools. It might be mentioned that some Logs were very neat and easily readable, but the percentage of these was low and in the minority. Very few U.S.A. stations listed the separate States they worked, but catalogued them under the heading of U.S.A. This made a lot of extra work with many references to the "Call Book", and such Logs really should have been disqualified (Rule 4B).

Disappointment was felt at the lack of interest shown in the SWL (Printer) part of the Contest, but the winner of this event turned in a nine page Log which was one

of the best received for neatness and had all contacts properly logged and timed.

In finalizing -- there were surely more DX stations heard and worked this year than ever before, and for this reason we have to thank the improved propagation, also the fine spirit of the DX contestants. Also wish to thank again the many fine people who helped to make this contest one of the GREATEST.

The trophies are presently being engraved, and we are making every effort to have them fully insured and mailed before the New Year to the lucky 16 Trophy Winners.

"CARTG",.

TOP 10					
1	PY2CQ	Brazil	1,412,184	Points	"CARTG" Trophy
2	ON4CK	Belgium	1,083,420	Points	"RTTY JOURNAL" Trophy
3	11KG	Italy	965,300	Points	"RTTY Bulletin" Plaque
4	W5QCH	U.S.A.	572,550	Points	"CARTG" Plaque
5	DJ6ZBA	Germany	555,395	Points	"CARTG" Plaque
6	WA8BOT	U.S.A.	544,575	Points	"CARTG" Plaque
7	W2RUI	U.S.A.	525,140	Points	"CARTG" Plaque
8	EL2N	Liberia	515,360	Points	"CARTG" Plaque
9	VK3KF	Australia	448,800	Points	"CARTG" Plaque
10	W9HHX	U.S.A.	435,600	Points	"CARTG" Plaque
MOST CANADIAN CONTACTS					
	W8CQ	U.S.A.	16	Contacts	"Canadian Director's Trophy"
HIGH SCORE 10 METERS					
	VK3KF	Australia	921	Points	"CARTG" Trophy
MOST U.S.A. STATES - CANADIAN PROVINCES					
	W9HHX	U.S.A.	38	States-Provinces	"RTTY JOURNAL" Trophy
HIGH SCORE 80-40 METERS					
	W20ER	U.S.A.	2220	Points	"RTTY JOURNAL" Trophy
NFSK HIGH SCORE					
	11AHN	Italy	132,480	Points	"CARTG" Trophy
HIGH SCORE S.W.L. "PRINTER"					
	Paul T. Menadier		521	Points	"RTTY JOURNAL" Trophy
	9 Bonad Road, Milton, Mass.		02186, U.S.A.		

11.	YV5AVW	424,145	28.	VK3DM	192,924	44.	KL7FLR	107,030
12.	DL4RY	384,224	29.	W8FWG	181,970	45.	K50IM	99,480
13.	DL1TV	309,800	30.	K50LU	171,020	46.	W6AEE	98,946
14.	WB2AHF	305,900	31.	W1BZT	170,445	47.	CE3EX	97,584
15.	VE3RTT	288,100	32.	VE2UN	166,650	48.	W8CQ	93,240
16.	WA6WGL	260,280	33.	W4EGY	154,770	49.	WA6GYQ	87,360
17.	WA4GTA	255,450	34.	WB6RXM	151,065	50.	W3ILZ	86,400
18.	W9EWC	244,320	35.	W1GKJ	146,240	51.	DL1VR	79,530
19.	W7TZL	229,155	36.	W4YG	133,912	52.	UA4KED	79,080
20.	WB6JSY	225,585	37.	11AHN	132,480	53.	ZL2AFE/3	77,860
21.	K7MNZ	221,535	38.	W3ISE	130,020	54.	DJ8GJ	76,200
22.	K6EV	210,970	39.	HP9B	124,780	55.	PA/GKO	75,260
23.	11KFL	208,775	40.	W7KS	120,120	56.	K8KAG	70,250
24.	G6JF	207,200	41.	K8MAM	114,660	57.	W6TX	70,040
25.	LU7EBB	206,640	42.	ZL2ALW	113,024	58.	0A4HR	64,846
26.	11KBT	205,868	43.	W6JOX	107,065	59.	PF2MI	59,520
27.	UQ2AB	198,900						

RTTY JOURNAL

Continued results and comments on page 13

LogicLine- Two CHARACTER COUNTER - .

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John Hewson

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Toronto 7, Ontario, Canada

(Editors Note)

Although this article describes an End of Line Indicator for a model 14 printer we feel that it will also be of interest to those experimenting with Integrated Circuits. We have no doubt that some of our readers will add or subtract and modify this circuit for some other use. We would like to hear of any results but please don't ask us anything, it is completely over our head.

THE ADVANCED E.O.L. COUNTER

There have been large releases of surplus Teletype #14 machines, most of which lack End of Line counters. Since it is essential to have some method of counting especially when working unattended page-printers, this article offers one solution to the problem.

This article describes a suitable counter that will provide indications of the 64th & 74th characters, with the facility of not counting certain of the "function" signals. Lamps are used for indicators. Two trigger outputs that change state at 74 are included.

Briefly, the counter works as follows. The Start/Stop contact is isolated through the use of a diode and used to clock the counter. Everytime a Stop signal occurs (Marking-contact closed), the input to the first dual input gate is grounded. It is usually held at Logical 1 by R a 6.8K. D3 & R1 and 200 ohm resistor help protect the gate from any voltage over 5 volts that might appear at this point.

Providing the second input to this gate is at logical 1, the output will go to 2 on a Stop signal. This is re-inverted by the second dual input gate, the alternate input being wired to Vcc, restoring the signal to it's original logical state but with improved rise-time. The second input to the first gate is the point at which "function" signal counts are inhibited and is described later.

The output from the second inverter is fed to the CP input of the decade counter which gives the "units" count. The "8" output from this counted drives the second, "tens" counter.

Vinary/Decimal converters are used to provide the 0 & 4 outputs from the units count, and the 0, 60 & 70 outputs from the tens count. Logical 1 outputs are required to drive the appropriate NAND gates but since there are no NOT outputs from the counters additional inverters are used.

The outputs of the two "O" NAND gates are combined in a dual input gate to give a Logical 0 output when the counters are reset. Units 4 & tens 6 are combined in a similar manner to give a "O" output at the count of 64, 74 is obtained in the same manner, only using the units 4 & the tens 7.

The output from the "O" decoder is inverted through a dual input gate, the inverted signal is used to drive the reset indicator. The two external trigger points are derived from the input & the output of this last inverted gate.

The output of the 64 gate toggles a flip-flop driving a lamp driver pair. This remains on until the counter reaches 74 or until the Carriage Return key is depressed, whichever is the earlier.

The 74 output toggles the 74 flip-flop, driving the 74 lamp on. The 74 output also toggles the 64 flip-flop causing the 64 indicator to be extinguished.

On depression of the Carriage Return key, the Cd input of the counter is grounded together with the two lamp driving flip-flops. The counters are thereby reset to zero and the 64/74 indicators turned off, although the reset lamp is illuminated.

On Teletype/letters/ is counted as a character of print. In this circuit provision is made to inhibit the count by grounding the second input to the first inverter gate. When the grounded, the output will remain at logical 1, regardless of the state of the count input. Normally open microswitches are used to ground this line, which is regularly held at logical 1 by R3, a 2.2k. Switches are used under the figs., ltrs., & LF (line feed) keys. If this facility is not used, this input should be wired by Vcc.

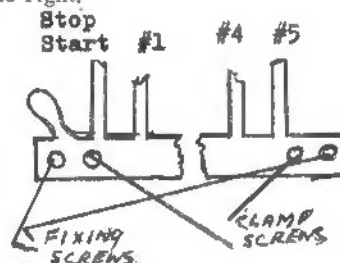
BEFORE MODIFYING ANY MACHINE, it should be in good working order AND tested in a loop. Whilst the following instructions appertain to Model 14's, they

may be used for modifying other machines with a similar contact assembly.

Locate the transmitter signal contacts, near the right-hand front edge. Rotate the drive shaft to ensure that the cam is in the Stop (Marking) position. Check the contacts. All should be open with the exception of the one nearest the solder tags.

Now depress any key, and rotate the shaft. The contact that was closed should open before any other contact closes, and should again close before the cam stops rotating. Depress other keys to ensure that this is the case everytime. This is the Start/Stop contact, the other five being the signal ones.

The two wires to the contact block should be unsoldered, and the two outer screws in the base of the block unscrewed. The block will come away. See the diagram to the right.



Carefully unscrew the two inner screws, noting the order of assembly. Lift off the clamp bar and the first insulator, and then the fixed set of contacts-which the set without the insulating pads at the tip of the contacts.

This is the set that requires modification. A cut must be made with a hacksaw, between the Start/Stop contact & the first signal contact. See Figure #2.

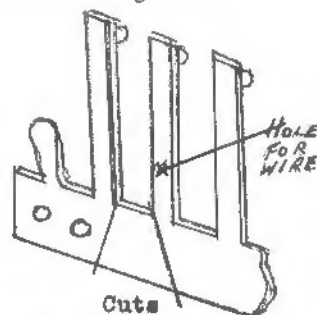


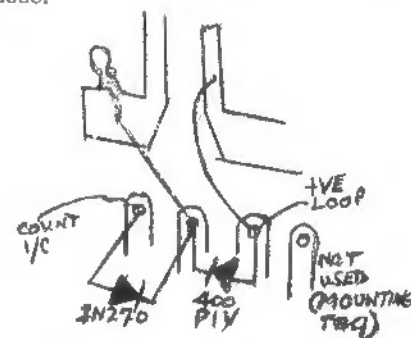
Figure 2

The cut edges should be filed smooth & tinned with solder to prevent corrosion.

A hole should be drilled in the first signal contact, large enough to accept a piece of wire. The hold posn, should be checked before drilling to ensure sufficient clearance between it & the insulator when assembled. The hole should be tinned.

Whilst the contact assembly is in pieces advantage should be taken to clean off old oil & dirt, and the contacts burnished.

During re-assembly a 4 way tag strip (ground tag 3) was mounted under the clamp screw nearest the solder tags, and wired as shown in Figure #3. Whilst tightening the clamping screws continually check the contacts for alignment. To avoid confusion in the future the writer painted these two screwheads red, to identify their purpose.

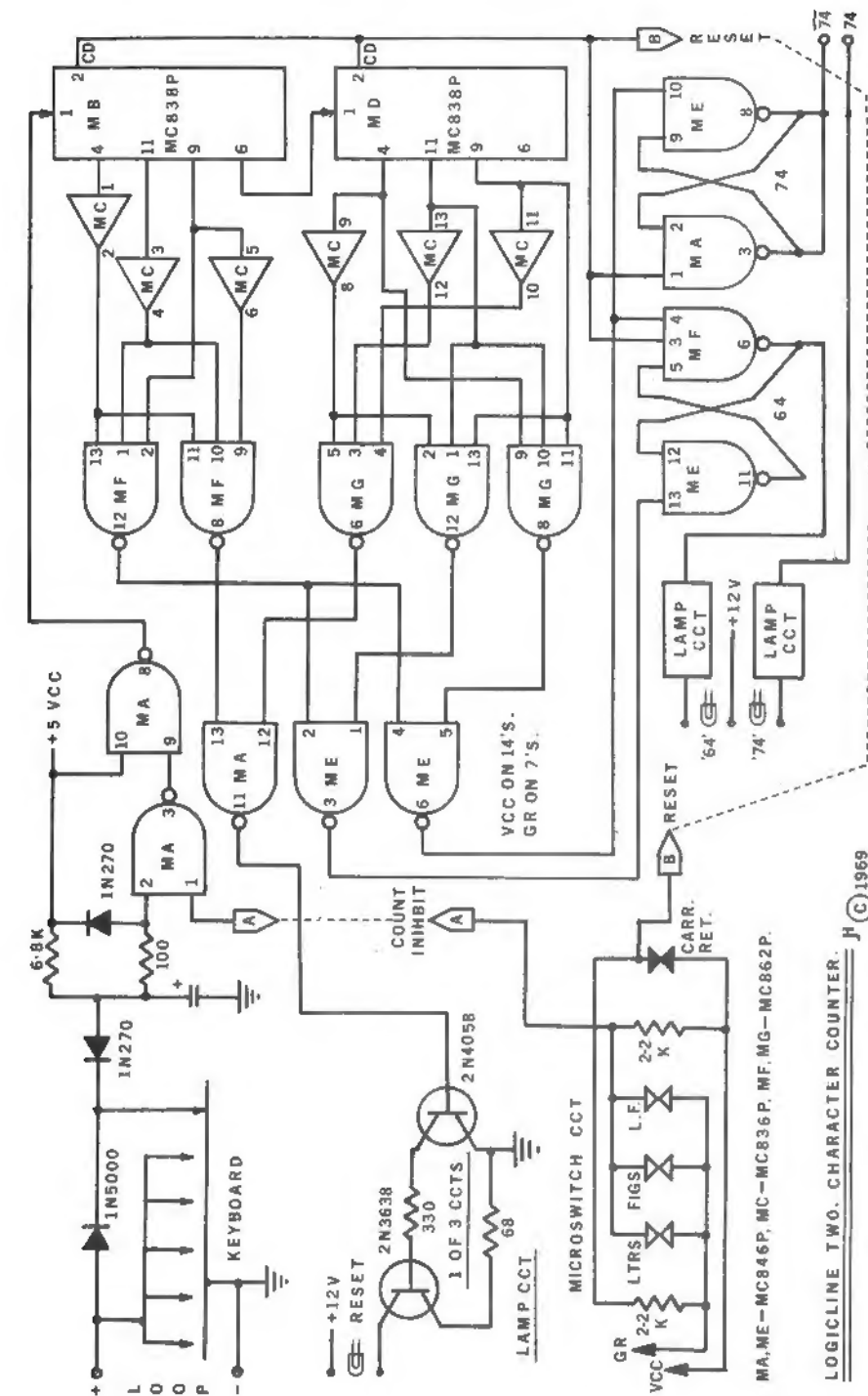


The 400 PIV diode was of sufficient current capacity to handle the loop current. The -ve end of this diode is connected to the #1 signal contact with a piece of flexible wire. The tag is the point at which THE NEGATIVE SIDE OF THE LOOP IS CONNECTED.

The other loop wire is re-connected to it's original location on the tag of the moving set of contacts, together with an additional wire that is the ground connection of the counter. The -ve end of the 400 PIV diode & the positive end of the 1N270 diode are located on the same tag, a wire being connected from it to the Start/Stop contact. The -ve end of the 1N270 diode is wired to the count input of the counter.

BEFORE CONNECTING THE MACHINE into the loop, the MORE POSITIVE SIDE of the loop is connected to THE VE END OF THE 400 PIV diode. As stated earlier, the -ve LOOP CONNECTION is to the MOVING SET OF CONTACTS.

The machine may be tested for correct functioning, trying all characters & function signals several times. A volt-meter should be placed across the two wires that



will be the count input. NO VOLTAGE READING SHOULD BE PRESENT. If there is, check both diodes for leakage and replace where necessary.

The writer mounted the three indicators to the right of the copy holder, going along with the idea that all good typists look at the copy & NOT at the keyboard! The four wires were terminated in a plug, whose mate was mounted atop the contact strip just to the rear of the signal cam shaft.

The logic diagram is shown overleaf, and a suggested layout for the ic's is given. The dot in the ic indicates location of pin #1. The small numbers at the inputs & outputs of each gate indicates the pin number, whilst the letters within each gate indicates the ic package. Several different layouts were tried and this turned out the most suitable. Since the lamp drivers are simple circuits, layouts were not indicated.

Vector board was used in the construction, with the necessary additional

holes drilled for the bugs. A fine tipped soldering iron, 22 gauge solder, P.T.F.E. sleeving & 24 gauge wire were used to complete the job.

The Motorola MC800 series was used as it has proved to be a very tough unit electrically, and is widely available in Canada, the U.S.A. & Great Britain. Data sheets may be obtained readily from Motorola stockists, and prove interesting reading since they give the circuits employed in the devices.

* MA is a MC846P, MB is a MC838P, MC is a MC836P, MD is a MC835P, ME is a MC846P, MF is a MC862P, MG is a MC862P, all of them in the Motorola MC800 series. All resistors in ohms & 1/2W composition. D1 400PIV current rating dependent on loop load. D2 & D3 1N270's. Vcc voltage 5 volts.

NOTHING TO IT ?

Overheard between K1PLP and WA2TFS to Tony, K1RKL, who was visiting at K1EJ's for information to get started on RTTY:

Let me tell you Tony, this RTTY stuff is bad business. Once you get an interest, the physical size of your station instantly triples itself. Where before you had a simple transceiver, or at most a transmitter and separate receiver, now you have to build yourself one of those fancy things called a "demodulator" to print the signals, and then you have to hook it up to a receiving printer in order to make any sense out of it. Then you also need a keyboard in order to be able to talk back at anyone. After all, you wouldn't want to just sit there and not be able to talk back!! And look at the size of the monster you need to do all this . . . and listen to the clatter and rattle. That alone is enough to discourage any intelligent person. But if you are like the rest of us "unintelligent" people, I know you will enjoy it Tony . . . the trouble with RTTY is you show your unintelligence when you don't spell the words correctly . . . I mean correctly. Oh Well!

Glad to meet you, Tony and be careful about getting hooked on this RTTY bit -- it is frustrating and annoying and impossible -- actually RTTY can present quite a problem . . . I am in the service

at the present time (home on leave now) and my CO didn't mind when I showed up with a transceiver, or even a linear amplifier, or for that matter he did not even raise much of a fuss over the three element beam I brought along, but when I tried to fit the model 15 and 14 into my duffle bag he had a small fit. What Jerry didn't tell you is that once you have this Mountinous pile of equipment in the shack and no room to move around so that you pull out your workbench, that is when it all breaks down and the only thing you can print is Spanish weather forecasts for the Azores . . . but after three months I love it even if I can't type.

Editor's note: We understand Tony has acquired a machine and in spite of the advice so freely given is making plans to be active on RTTY soon.

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RTTY theory & applications.

RON 'RG' GUENTZLER, W8BBB
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ADA OHIO, 45810



RTTY FOR THE BEGINNER DESIRABLE COMPLEXITIES

Last month we described the Twin City TU because its basic principles of operation are similar to those of more complex units; i.e., the Twin City TU contains the fundamental or "absolutely" necessary circuits found in any TU. It is a unit that can be used with FSK or AFSK. It is a relatively simple unit that will give excellent performance on reasonably-good signals, but is not the best performer when the going gets rough (QRM, QRN, QSB).

We are not going to describe specific circuit modifications that can be made to the Twin City TU, but, instead, we are going to point out some of the reasons why a basic unit such as this may not perform well under poor conditions. The possible solutions to be described have been incorporated into many other units.

THE LIMITER

We discussed the limiter and indicated that its purpose is to present a signal of constant strength to the remainder of the unit essentially independent of the audio signal being supplied to the TU by the receiver. This is a desirable situation because at some point within the TU a decision must be made as to whether a Mark or Space is being received so that the loop being controlled by the TU can be closed or opened, respectively. The decision-making process is uniform when a signal of uniform strength is presented. The limiter not only presents a uniform-strength audio signal independent of "volume control" setting on the receiver, but it also corrects for one tone being louder than the other; this can result from many causes including the frequency response characteristics of the receiver.

So far, the limiter does nothing but good; however, what happens when a noisy signal is being received?

In order to gain some insight into the

answer to this question, digress for a moment. Frequency-shift keying, be it carrier frequency shift keying (FSK) or audio frequency shift keying (AFSK), is a form of frequency modulation. The "better" FM receivers normally use two or more limiters before the detector stage. With FM receivers, when two signals are present simultaneously, the louder or stronger of the two signals "captures" the receiver and will almost totally suppress the weaker signal unless the two signals are very nearly the same strength. If a signal and noise are present simultaneously, they can both be thought of as signals and whichever is stronger will capture the other. The net result is that when working with FM signals (RTTY, voice, or music) the desired signal is either there and of good quality or not there at all. This is because when the signal is stronger than the noise, the limiters tend to suppress the noise; when the noise is stronger, the limiters tend to suppress the signal. (The so-called "noise free" characteristics of FM have led to two common fallacies: 1) FM is noise free, and 2) FM is better than AM. Actually: 1) When an FM signal is strong, it swings, and 2) When the going is rough, AM is better than FM.)

Now back to the TU. So long as the noise is less than the signal, the limiters do their job of equalizing levels, and, in addition, tend to suppress noise. However, when a signal gets noisy, the limiters tend to suppress the signal in favor of the noise! The obvious solution appears to be that the limiters should be dispensed with. In general, this is not the answer, although it does, upon occasion, have benefits; i.e., "limiterless" or "AM" operation of the TT/L-2.

A large improvement can be gained by reducing the noise before it gets to the limiters. This can be accomplished by using a bandpass filter before the limiters.

The information in a RTTY signal is

contained in a small band of frequencies centered around the Mark and Space frequencies. The interfering noise is spread over the whole bandpass of the receiver. (The actual spectrum of noise is dependent upon its source, the type of detector in the receiver, and the audio bandpass of the receiver.) For example, assume a typical "wide-shift" RTTY signal is being received in the presence of "white noise". The RTTY signal as it appears from the receiver will occupy, approximately, a bandwidth from 2125 to 2975 Hz (a bit wider because of keying rate and wave-shape). The noise will occupy the frequency spectrum from, perhaps, 300 Hz to 3300 Hz.

If a bandpass filter is placed between the receiver and the TU, and its bandwidth is adjusted to be just wide enough to pass the RTTY signal, the noise getting into the TU will be reduced by a factor of four times! Generally, the improvement is even better because the noise coming from the receiver tends to be very strong at the lower audio frequencies and relatively weak at the higher frequencies where the RTTY tones are located. The limiter is not frequency dependent. Therefore, by eliminating the very strong low frequency noise components a great increase in receiving performance is gained. Incidentally, a major argument in favor of "narrow-shift" has just been made!

LOW PASS FILTER

The signal in the receiving loop is supposed to consist of on and off pulses of 22 millisecond duration, minimum. When noise is present, the loop may open and close erratically at intervals of less than 22 ms; this can "junk" copy. The effect of noise can be reduced by somehow restricting the speed at which the loop can open and close (change from M to S to M). This can be accomplished by placing a low pass filter between the detector (in the TU) and the loop keyer. In the case of the Twin City TU described last month, it would go somewhere between the outputs of the voltage doubler rectifiers and the polarized relay.

LOOP KEYER

The output loop should be either open or closed (S or M) and nothing in between. When it is opened, the current in the loop should decay rapidly, and when it is closed, the current should build up very rapidly. (Preferably 1 ms or less). About a year ago (1967 DEC, 1968 JAN & FEB), we dis-

cussed in this "column" some of the aspects of this problem.

The Twin City TU contains a polarized relay that keys the output loop. The relay contacts are either open or closed, thus meeting the criterion that no "half-way" state exist. So long as the power supply feeding the loop is at least 130 volts and so long as there are not too many selectors in the loop (2 is enough), the current rise time will be satisfactory. Therefore, the output loop is indeed theoretically very good. However, it does have three drawbacks: 1) The polarized relay is a precision device and must be carefully and accurately adjusted (An I-193C test set will do this), 2) The contacts on the relay may generate noise that is difficult to eliminate, and 3) Some people just hate polar relays (prejudice).

The relay can be replaced with devices such as vacuum tubes or transistors, but when this is done two criteria must be met? 1. Only two states must exist in the output loop, on and off, and, 2. The current rise and fall times must be short; i.e., 1 ms or less.

The second criterion is easy to meet. One method is to use at least a 130 volt loop power supply (and a transistor that is capable of working at 130 V or higher). A better, but more complex, solution is to use a "constant current mode" device or devices to key the loop.

The first criterion has to be considered because vacuum tubes or transistors can operate in a partially-conducting state. A relatively simple way to meet this criterion is to place an electronic "switch" immediately preceding the output device. Usually, a Schmitt trigger is used. It is a circuit whose output is either "on" or "off" although the signal applied to its input may have any value.

SUMMARY

Three basic improvements can be made to the "basic" TU described last month. They are, in order of decreasing importance: 1. A bandpass filter placed before the limiter in order to reduce the amount of noise appearing at the limiter, 2. A low pass filter placed after the detector and before the output keyer; the filter reduces rapid opening and closing of the loop when noise is present, and 3. An electronic loop keyer to replace the polarized relay; the keyer must include a switch before it and the keyer must have the right time constants.

RTTY-DX

JOHN POSSEHL - W3KV
Box 73 Blue Bell, Pa., 19422



Hello there. . . .

The results of the CARTG contest are out and what a contest it was. The scope of the final report, thirteen pages, can attest to the volume of activity during the contest and to the detailed analysis and summary given the results by Sid of the CARTG. You will find a comprehensive report elsewhere in this issue and at the risk of being redundant we wish to acknowledge the terrific job done by the winner, PY2CQ, and runner-up, ON4CK, in breaking the one million point barrier. Only two years ago we were wondering who would be the first to break the one hundred thousand point barrier in a RTTY contest.

After many delays, we now have the complete results of the 1968 BARTG contest. The Group sincerely apologizes for the delay, which was quite unavoidable, and promises faster processing of the contest logs in the future. The complete listing of entries and final scores are as follows.

1. I1KG	190,400*	23. WA8IQZ	32,868*
2. ON4BX	132,600*	24. G3LNN	32,550*
3. W2RUI	98,754*	25. WB6RXX	31,500*
4. ON4CK	87,778*	26. F3PI	31,068*
5. W3KV	86,670*	27. CE3EX	30,210*
6. UA4KED	73,326*	28. VK3KF	26,600
7. W5QCH	64,750*	29. XE1YJ	24,480
8. G6JF	60,900*	30. W8CAT	22,876
9. W3ISE	57,820*	31. VE4FG	21,792
10. W8GPB	55,242*	32. W1GKJ	21,168
11. VU2KV	54,186	33. I1TBU	20,584
12. DJ9XBA	54,056*	34. KL7FRX	19,050
13. PJ2MI	54,040*	35. SM5CLW	15,912
14. I1ROL	53,658*	36. DL5PQ	15,260
15. WA6WGL	52,440*	37. I1EVK	15,198
16. K4VDM	52,020	38. ZL2ALW	14,880
17. K8YEK	50,964*	39. LU7EBB	14,840
18. PAOPAZ	49,996*	40. WA2YVK	14,416
19. SMOKV	46,438	41. KP4JM	14,388
20. UQ2AB	44,118	42. I1LAP	13,728
21. W3ABT	42,978	43. G6CW	13,500
22. VE5DR	33,600	44. K8KAG	12,600

45. VE3RTT	11,920	54. W7CBY	5,208
46. SM6ABN	11,420	55. DL8VX	4,830
47. DM3DD	10,010	56. K2YEQ	4,284
48. WA4KKG	9,552	57. G2HIO	3,640
49. OZ6OB	9,230	58. G3LDI	2,450
50. W6AEE	7,120	59. SMOBPZ	1,000
51. SM7BBJ	6,624	60. W7MAE	440
52. PJ2CR	5,760		
53. WB6QFE	5,440		

1. VK3DM 32,784)
2. DLOEL 17,936) Multi-op stations

*Indicates that station made WAC

In a write-up of the contest activity back in the April 1968 issue it was indicated that perhaps I1KG would be the winner and as it turns out, he really is. Congratulations to Giovanni on a fb effort. He finished up with 68 band/countries and 180 contacts. Runner-up, Arthur, ON4BX, in second place had 55 band/countries and 126 QSO's.

The Annual Spring BARTG Contest will take place again this year on March 15-17, and all RTTY'ers are invited to participate. The rules this year are slightly different and a full review can be found on another page of this issue.

The management of the CARTG and BARTG contests were unanimous on one point regarding the processing of contest logs. Both say that while some logs are neat and easy to process these are quite in the minority. In order to be fair to all entrees each log must be checked and cross-checked. The job of the contest committee would be greatly simplified and allow for faster processing if there was some standard contest form available or suggested. The Volta contest committee does have a standard form that is pretty widely circulated and I am sure allows for faster checking of the logs. In future contests perhaps a suggested format for the contest log could be furnished along with the rules for the contest and reproduced somewhere on these pages as a guide. A few years ago I had the occasion to have the logs of a RTTY SWEEPSTAKES con-

test pass through here and I believe there were as many different log arrangements as there were logs submitted. It's no wonder we never hear the committee fellows on the air between contests. Then we cannot blame the entrants too much, as without a guide it is "to each his own".

The Volta contest took place on December 21-22 as scheduled but unfortunately the publicity was pretty much limited to the mailing of the notice and log forms to prior contestants and full coverage could not be given on these pages as the official notice arrived too late to make publication.

The contest took place two weeks later than last year and very close to the world wide holidays and as a result perhaps many were only able to enter briefly due to other commitments that week-end. Activity was quite brisk however, with many contest operators like DL1VR, I1KG, ON4BX, W2RUI, VK3KF, G6JF, and others very much in evidence. We did not hear any activity on Ten although Fifteen was quite active in good conditions. Willy, LX2BQ, and Fred, LX2FB were very active which I suppose accounts for the entire RTTY populations of Luxembourg and giving many a new country. In passing we might comment on the fact that the rules were a little ambiguous and many took the easy way on the message, sending just the Check and the Zone, although the log sheets called for more complete information.

Very active from Venezuela lately is WA3HXR/YV5. Frank has been there for some years but only recently became active when reciprocal licensing went into effect between the two countries. Frank's xyl is Eva, YV1IK, who is certainly no stranger to DX'ers on the high frequency bands. Frank indicates that three new stations may soon be active from YV land.

Charlie, W5QCH, reports hearing Venkat, VU2KV early in December at around 1200z on 14 mc. No QSO resulted however, as Charlie was about to leave for work. Venkat has been in Europe most of last year but apparently is home again and will be more active. Ven uses Fifteen meters quite a bit too so it may pay to listen on that band once in a while. I did recently and had nice contacts with OZ9SL and UQ2KAX under what you could call QRMless conditions.

Early in December 5T5AD was again on the band as advertised by some of the boys. We did print Mike, F3PI testing with

him but we could not copy Alban at the time. KZ5GA also made an appearance from the Canal Zone at about the same time. When the path to Asia is open around your way at 2200-2300z you may print KR6MH. Russ has been putting a surprisingly good signal here on the East coast on Twenty considering he has been running only 40 watts lately. In the first week of the New Year, Arthur, ON4BX had a QSO with EP2CH in Teheran. His name is Chuck and here is his mailing address for you fortunate people that may work him.

Box 400

TOPO Training Team

APO New York, N.Y. 09205

A note to the Journal from Cas ex KA9AK finds him very busy in Viet Nam with things other than amateur radio. Cas does indicate that he may go on leave soon to VK land and if possible, visit with Eric, VK3KF and some of the other RTTYers down that way. To old buddies that would like to get in contact with Cas, "by mail", that is, here is his present QTH.

CW4 Forrest Castle

Hdqts. Co. 313th R.R. Bn.

APO San Francisco, Calif. 96350

Cas says that if he can arrange it, he would like to be at Eric's during one of the contests coming up shortly. It sure would be great to hear Cas at the kybd again.

By way of Bud, W2LFL, comes some information from DL8VX. Wolf says that there is a good possibility of activity from ZC4TX, which is a club station on Cyprus. The delay at the moment is a suitable printer. Wolf is also looking for USA contacts on Ten. He will look around 29050 if you will look for him around 28100. He is usually on that band around 1000-1900z most days.

It is now our pleasure to extend congratulations to the following stations for WAC RTTY.

Nr. 116 Carl Steavenson WB6RXXM

Nr. 117 Cliff Pittelkau W4CQI

In the March Issue we will again post the RTTY - DX listing. Many thanks to those who have already up dated their totals and we hope to hear from many of you by the deadline date of February 1. Just submit a total of countries worked and confirmed on RTTY. A postcard with two numbers will do fine, or better yet give them to me over the air most any day on 14095 or 21095 at 1230 - 1330z.

---73 de John

RTTY JOURNAL

BARTG DX CONTEST -

MARCH 15-16, 1969

B.A.R.T.G. SPRING RTTY CONTEST WHEN

0200 GMT Saturday March 15th until 0200 GMT Monday March 17th 1969.

The total contest period is 48 hours but no more than 36 hours of operation is permitted. Times spent in listening counts as operating time. The 12 hour non-operating period can be taken at any time during the contest, but "off periods" may not be less than two hours at a time. Times on and off the air must be summarized on the Log and Score sheets.

BANDS

3.5, 7, 14, 21 and 28 Mhz Amateur Bands.

STATIONS

Stations may not be contacted more than once on any one band. Additional contacts may be made with the same station if a different Band is used.

COUNTRY STATUS

ARRL Country List, except KL7, KH6 and VO to be considered as separate countries.

MESSAGES

Messages exchanged will consist of:

- Message number
- Time GMT
- Country and Continent

POINTS

(A) All two-way RTTY contacts with stations within one's own country will earn TWO points.

(B) All two-way RTTY contacts with stations outside one's own country will earn TEN points.

(C) All stations will receive a bonus of 200 points per country including their own.

SCORING

(A) Two way exchange points times total Countries worked.

(B) Total Country points times number of Continents worked.

(C) Add (a) and (b) together to obtain your test score.

Sample Score:

(a) Exchange points (302) x Countries (10) - 3020

(b) Country points (2000) x Continents (3) - 6000

(c) (a) and (b) added to give a score of 9020

LOGS AND SCORE SHEETS

Use one log for each band and indicate any rest periods. Logs to contain Band, Message Number, Time GMT and Continents. Exchange points claimed. All Logs must be received by May 5th 1969 to qualify.

AWARDS

Certificates will be awarded to: The two top scorers in each country. The Judges decision will be final and no correspondence can be entered into in respect of incorrect entries. This is to enable the scores to be worked out more quickly and should result in more speedy publication of the results.

Send your Logs to:

Ted Double G8CDW,
B.A.R.T.G. Contest Manager,
33B, Windmill Hill,
ENFIELD
Middx. England.

COMMENTS -

Continued from Page 3
WA4TWB - Would like to suggest shorter rest periods such as half hour. Found it necessary to only repeat message context once, contacts went faster this way.

KP4JM - This was a terrific contest, but unfortunately I was forced out for repairs. Propagation conditions were excellent in KP4 Land and I copied more than a score of new countries.

W2RUI - Time restriction is a needless complication. One operator station only here. Had fun!

VK3KF - Propagation conditions were generally better than in past years in the South Pacific area. Too long CQ's.

ZL2ALW - Some of those using tape transmitters for calling purposes could listen more and send less.

G6JF - An extremely well organized and enjoyable contest. The enforced rest periods are welcome by us farmers and does permit us to undertake the milking duties quietly instead of going round the cows like a "Skalded Cat" as in the past. Conditions generally seemed favorable.

K8MAM - Sorry to note lack of NFSK activity. Tnx fer good contest.

'TROPHY WEEK END' Results and Comments-

Continued from Page 3

60. WA4TWB	58,995	90. VE7BHH	20,160	120. VE3FWX	4,008
61. DL9VD	58,600	91. W9CAA	19,686	121. SM7CFR	3,870
62. VE5LG	52,920	92. WB2FPT	19,008	122. ON5WG	3,660
63. VE5DR	51,300	93. WA8NWN	18,432	123. W9MAI	3,600
64. W8CAT	51,000	94. SM5CLW	18,320	124. W20ER	2,240
65. OZ4EDR	50,324	95. HA5FE	17,568	125. VE3RH	2,112
66. WB2JBH	48,300	96. G3IYG	17,010	126. DJ2YE	1,474
67. HB9AKA	46,736	97. K2PTH	16,864	127. WA0BJG	1,416
68. LX2FB	45,980	98. F3PI	16,800	128. VE4FG	1,392
69. VE3FBP	43,120	99. K6HGF	16,588	129. VE1AK	1,356
70. W6MTJ	41,344	100. K9UYU	16,060	130. OZ60B	1,280
71. DL5PQ	40,500	101. F9RC	14,510	131. SM5BRQ	888
72. PJ2CR	38,960	102. K2YEO	13,818	132. W4ULY	790
73. OE6WF	37,584	103. ILCL	12,232	133. VE6MM	570
74. WA2YVK	36,860	104. OM1MP	10,440	134. W2VAC	440
75. K9BJM	36,788	105. W5APM	8,640	135. W7CBY	408
76. W3KN	35,328	106. W0HAH	8,480	136. KP4JM	268
77. WA6TLA	35,120	107. KH6GLV	8,211	137. VO1EE	82
78. K8YJO	34,304	108. W2FAN	7,812	138. W6DFR	48
79. OA4BR	32,640	109. W9TKR	7,420	139. VE7AMJ	32
80. DJ8BT	31,120	110. W4LLL	7,056	140. VE3FHQ	2
81. K8QLO	30,485	111. W6FFY	7,056	SWL LOGS	
82. ILCL	28,680	112. ILAFF	6,552	141.	521
83. KH6AUX	28,413	113. VE3EBR/2	5,724	142.	144
84. K5ARH	27,180	114. WA8NGJ	5,535	143. WA1DPX	108
85. W8VON/8	26,368	115. VE7CZ	5,472	Paul Menadier, Milton, Mass.	
86. WB6QFE	25,680	116. W1AW	5,424	R. Coates, Newcastle, England.	
87. HC1MF	24,480	117. K2RYI	4,473	Ray Dick, Arlington, Mass.	
88. W7BDU	21,400	118. K4GJW	4,431		
89. WA2CUB	21,320	119. HP9ACQ	4,392		

(*VE3RTT listed for record purpose only, *38% of Logs submitted show some NFSK operation and not eligible for any award.)

40% show some operation on 10 meters.

COUNTRIES STATIONS

1. Antarctica	1	23. Italy	29
2. Alaska	2	24. Japan	3
3. Argentina	3	25. Latvia	5
4. Australia	7	26. Liberia	1
5. Austria	4	27. Lithuania	1
6. Belgium	3	28. Luxembourg	2
7. Brazil	3	29. Mexico	1
8. Canada	18	30. Netherlands A	1
9. Chile	1	31. New Caledonia	1
10. Colombia	1	32. Newfoundland	1
11. Czechoslovakia	1	33. New Zealand	6
12. Denmark	7	34. Norway	1
13. Ecuador	1	35. Peru	2
14. England	11	36. Puerto Rico	2
15. France	11	37. Sardinia	1
16. Germany	31	38. Sint Maarten	1
17. Guadeloupe	1	39. South Africa	2
18. Hawaii	3	40. Sweden	6
19. Holland	9	41. Switzerland	4
20. Hungary	3	42. U.S.A.	262
21. Iran	1	43. U.S.S.R.	1
22. Ireland	1	44. Venezuela	4
		45. Yugo Slavia	2

COMMENTS

ON4CK - Your rules for this Contest were very good. It is terrific to notice how bands were dead for some days after the Contest.

K5OLU - Like the new rules. Bigger and better than ever. - also more QRM than ever. See you next year.

WA8BOT - Great contest, really enjoyed it, already looking forward to next year's "Go-rounds".

DL1TV - Really enjoyed the Contest. Sorry I couldn't catch any Asian stations.

VE5DR - Hope to do better next time. Where were all the 170 guys?

VE5LG - This was a real "sooper-doooper" of a contest. Didn't know there were that many RTTY stations.

SWL R. Coates. Thanks for a great contest.

Continued on Page 12.

HITS & MISSES

From The Editor
and
his Mail



Suddenly we have a number of DX contests, October, December, February, March and April. Too many we feel to have all of them a success. All so far have one thing in common, they are requiring rest periods or are of shorter duration than the old 48 hour marathon. With this we agree 100%. There are a few isolated contest operators that seem to be able to keep going for the long periods but I am sure that most of us have to give up for a while at least. The Giant Flash Contest in February (see last month for details) limits contest time to 8 hours a day for the two week end days. The only problem with this shortened time is that propagation to some parts of the world may not be open during these hours. Operations during the contest will be a good test.

Personally we enjoy a contest but with the limited number of RTTY stations around the world, it seems to be a case of working the same stations time after time. The same routine and the same group of leaders. Without taking anything away from the leaders it seems to us that some contest could be planned that would offer a greater measure of participation by RTTY fans who are not DX minded. Over a year ago we suggested a Sweepstakes contest with states and Canadian providences as multipliers, similar to the ARRL sweepstakes. This was incorporated into the CARTG contest this year. We concentrated on this phase and worked a total of 42 States and Provinces. Many times the bands were dead, especially 40 and 80 meters during the day when many contacts could have been made. We had a lot of fun and a new state was always a thrill, but where was everybody? Possibly the bigness and complexity of the contest was not fully understood, possibly RTTY operators just don't like contests.

Maybe we are stubborn but we still feel that a contest for the none DXers could be a lot of fun. It is too late this year to promote one but next fall we hope

to see a separate contest along these lines. The Journal will be glad to co-operate with any group that would care to run it, if not we may try it ourself. Stubborn eh?

We can see why begging can be a habit for some people, everytime we have begged we get something. Our request for a index of the past two years of the Journal got us a promise. We hope to run it soon. We are still begging for articles and short items on any phase of RTTY. Ideally we would like to have enough material to run for several months ahead. Usually we are only a few steps from a bare cupboard. We still get requests for FSK information on popular excitors. If you have a method on some excitor that we have not printed, it will be welcome. This is the request we most often get.

We still have received no reason for the printing of "CW ID to Follow" at the end of each transmission. If there is no reason - why is it done???

BACK ISSUES —

Only back issues available are July through December 1966. February 1968 to date. Copies are 30 cents each. RTTY JOURNAL Binders are available at \$2.50 each. Postpaid.

RTTY JOURNAL

P.O. Box 837 — Royal Oak, Michigan 48068

"Dusty" Dunn — W8CQ

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Additional Classified on page 16

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